

**Suggested Transfer Pathway**  
Montgomery College A.S. in General Engineering to  
University of Maryland, College Park at the Universities at Shady  
Grove B.S. in Biocomputational Engineering



Total Credits: 64-65, Catalog Year: 2019-2020

**0 - 32 Credits – Montgomery College**

	Cr
ENES100 Intro to Engineering Design (GEEL)	3
MATH181 Calculus I	3
CHEM 132* Principles of Chemistry II or 135 General Chemistry for Engineers	4
Behavioral and Social Sciences Distribution *	3
Humanities Distribution	3
<b>Total Credits</b>	<b>16</b>

(Courses may be taken in any order, pending prerequisites)

	Cr
ENGL102 Critical Reading, Writing and Research	3
<b>MATH182 Calculus II</b>	<b>4</b>
PHYS161 General Physics I: Mechanics and Heat	3
<b>Behavioral and Social Sciences Distribution **</b>	<b>3</b>
<b>ENES120 Biology for Engineers (or BIOL150)</b>	<b>3</b>
<b>Total Credits</b>	<b>16</b>

**33 - 63 Credits – Montgomery College**

	Cr
MATH280 Multivariable Calculus	4
PHYS262 Physics II: Electricity and Magnetism	4
CHEM203 Organic Chemistry I	5
ENES240 Scientific and Engineering Computation	3
<b>Total Credits</b>	<b>16</b>

	Cr
MATH282 Differential Equations	3
PHYS263 Physics III: Waves, Optics, Modern Physics	4
Arts Distribution	3
CMSC140 Introduction to Programming or CMSC206 Python Programming	3-4
Program Electives †	3
<b>Total Credits</b>	<b>16-17</b>

*Apply to graduate from Montgomery College with an Associate of Science in [General Engineering](#)*

\*\* The pre-requisite for CHEM 132 is CHEM 131.

\*\* BSSD courses must come from different disciplines.

† MATH 165 if needed for MATH 181 or any course from the following disciplines: ENEE, ENES, PHYS, CMSC, CHEM, BIOL, GEOL.

**Year Three – Univ. of Maryland, College Park at USG**

Fall Semester	Cr
ENBC301 Intro to Biocomputational Engineering	1
ENBC311 Python for Data Analysis	3
ENBC312 Object Oriented Programming in C++	3
ENBC321 Machine Learning for Data Analysis	3
ENBC322 Algorithms	3
ENBC441 Computational Systems Biology	3

Spring Semester	Cr
ENBC331 Applied Linear Systems and Differential Equations	3
ENBC332 Statistics, Data Analysis, and Data Visualization	3
ENBC341 Biomolecular Engineering Thermodynamics	3
ENBC342 Computational Fluid Dynamics and	

**Total Credits** 1  
6

**Mass Transfer** 3  
**ENGL393 Technical Writing** 3  
**Total Credits** 1  
5

**Year Four – Univ. of Maryland, College Park at USG**

Fall Semester	C r
ENBC352 Molecular Techniques Laboratory	3
ENBC353 Synthetic Biology	2
ENBC 4xx Senior Level Elective 1	3
ENBC 4xx Senior Level Elective 2	3
ENBC4xx Senior Level Elective 3	3
<b>Total Credits</b>	1 4

Spring Semester	C r
ENBC425 Imaging and Image Processing	3
ENBC431 Finite Element Analysis	3
ENBC4xx Senior Level Elective 4	3
ENBC491 Senior Capstone in Biocomputational Design	3
ENBC351 Quantitative Molecular and Cellular Biology	3
<b>Total Credits</b>	1 2

**MC [A.S. in General Engineering](#) to UMD-USG B.S. in Biocomputational Engineering**

Total Credits: 63, Catalog Year 2019-2020

Name:	Date:	ID#	
<b>General Education Courses</b>	<b>COURSE</b>	<b>HRS</b>	<b>GRADE</b>
English Foundation (ENGL102, Critical Reading, Writing and Research)	ENGL102	3	
Math Foundation (Calculus I)	MATH181	4	
<b>Distribution Courses</b>	<b>COURSE</b>	<b>HRS</b>	<b>GRADE</b>
NSND: General Physics I: Mechanics and Heat	PHYS161	3	
NSLD: General Physics II: Electricity and Magnetism	PHYS262	4	
<b>Arts Distribution</b>		3	
Behavioral and Social Sciences Distribution *		3	
Behavioral and Social Sciences Distribution *		3	
Humanities Distribution		3	
<b>General Education Elective</b>	<b>COURSE</b>	<b>HRS</b>	<b>GRADE</b>
Introduction to Engineering Design	ENES100	3	
<b>Program Requirements</b>	<b>COURSE</b>	<b>HRS</b>	<b>GRADE</b>
ENGL101 (if needed for ENGL102/ENGL103, general elective if not)		3	
Calculus II	MATH182	4	
Organic Chemistry I	CHEM203	5	
Scientific and Engineering Computation	ENES240	3	
<b>Area of Concentration Requirements</b>	<b>COURSE</b>	<b>HRS</b>	<b>GRADE</b>

Principle of Chemistry II or General Chemistry for Engineers	CHEM 132 or CHEM135	4
Multivariable Calculus	MATH280	4
General Physics III: Waves, Optics and Modern Physics	PHYS263	4
CMSC140 Introduction to Programming or CMSC206 Python Programming	CMSC140 or CMSC203	3
Differential Equations	MATH282	3
Program Electives †		3

\* BSSD courses must come from different disciplines

† MATH 165 if needed for MATH 181 or any course from the following disciplines: ENEE, ENES, PHYS, CMSC, CHEM, BIOL, GEOL.

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